WHAT IS CLAIMED IS:

1. A microstructure for steering light, the microstructure comprising:

a substrate;

a structural linkage connected with the substrate and supporting a structural film, the structural film including a reflective coating; and

a first hold electrode connected with the substrate at a position laterally beyond an orthogonal projection of the structural film on the substrate and configured to hold the structural film electrostatically in a first tilted position with respect to the substrate upon application of a potential difference between the structural film and the first hold electrode.

2. The microstructure recited in claim 1 further comprising a first snap-in electrode connected with the substrate at a position laterally within the orthogonal projection of the structural film on the substrate and configured to tilt an end of the structural film in a direction towards the first snap-in electrode upon application of a potential difference between the structural film and the first snap-in electrode.

3. The microstructure recited in claim 2 wherein the first snap-in electrode comprises a polysilicon layer.

4. The microstructure recited in claim 3 wherein the first hold electrode comprises a polysilicon bilayer.

5. The microstructure recited in claim 1 wherein the reflective coating comprises gold.

6. The microstructure recited in claim 1 wherein the first hold electrode comprises a comb structure having a plurality of teeth, the first hold electrode being configured such that the first tilted position is defined by an angle with respect to the substrate that depends on the potential difference between the structural film and the first hold electrode.

7. The microstructure recited in claim 6 wherein the angle of the first tilted position deviates increasingly from horizontal with an increase in the potential difference between the structural film and the first electrode.

8. The microstructure recited in claim 1 further comprising a second hold electrode connected with the substrate at a position laterally beyond an orthogonal projection of the structural film and the substrate and on an opposite side of the structural linkage from the first hold electrode, wherein the second hold electrode is configured to hold the structural film electrostatically in a second tilted position with respect to the substrate upon application of a potential difference between the structural film and the second hold electrode.

9. The microstructure recited in claim 8 further comprising first and second snap-in electrodes connected with the substrate at positions laterally within the orthogonal projection of the structural film on the substrate and on opposite sides of the structural linkage, each of the first and second snap-in electrodes being configured to tilt an end of the structural film in a direction towards that snap-in electrode upon application of a potential difference between the structural film and that snap-in electrode.

10. The microstructure recited in claim 9 wherein the first and second snap-in electrodes comprise a polysilicon layer.

11. The microstructure recited in claim 10 wherein the first and second hold electrodes comprise a polysilicon bilayer.

12. The microstructure recited in claim 8 wherein the reflective coating comprises gold.

13. The microstructure recited in claim 8,

wherein the first hold electrode comprises a first comb structure having a plurality of teeth, the first hold electrode being configured such that the first tilted position is defined by a first angle with respect to the substrate that depends on the potential difference between the structural film and the first electrode; and

wherein the second hold electrode comprises a second comb structure having a plurality of teeth, the second hold electrode being configured such that the second tilted position is defined by a second angle with respect to the substrate that depends on the potential difference between the structural film and the second electrode.

14. The microstructure recited in claim 13,

wherein the first angle deviates increasingly from horizontal with an increase in the potential difference between the structural film and the first electrode; and

wherein the second angle deviates increasingly from horizontal with an increase in the potential difference between the structural film and the second electrode.

15. A method for fabricating a microstructure for steering light, the method comprising:

forming a first hold electrode on a substrate;

forming a structural linkage on the substrate;

forming a structural film on the structural linkage; and

depositing a reflective coating on the structural film;

wherein the first hold electrode is at a position laterally beyond an orthogonal projection of the structural film on the substrate and configured to hold the structural film electrostatically in a first tilted position with respect to the substrate upon application of a potential difference between the structural film and the first hold electrode.

16. The method recited in claim 15 further comprising forming a first snap-in electrode on the substrate at a position laterally within the orthogonal projection of the structural film and the substrate and configured to tilt an end of the structural film in a direction towards the first snap-in electrode upon application of a potential difference between the structural film and the first snap-in electrode.

17. The method recited in claim 15 wherein the reflective coating comprises gold.

18. The method recited in claim 15 wherein forming a first hold electrode comprises forming a comb structure having a plurality of teeth, wherein the first hold electrode is configured such that the first tilted position is defined by an angle with respect to the substrate that depends on the potential difference between the structural film and the first hold electrode.

19. The method recited in claim 15 further comprising forming a second hold electrode on the substrate at a position laterally beyond an orthogonal projection of the structural film on the substrate and on an opposite side of the structural linkage from the first hold electrode, wherein the second hold electrode is configured to hold the structural film

electrostatically in a second tilted position with respect to the substrate upon application of a potential difference between the structural film and the second hold electrode.

20. The method recited in claim 19 further comprising forming first and second snap-in electrodes on the substrate at positions laterally within the orthogonal projection of the structural film on the substrate and on opposite sides of the structural linkage, each of the first and second snap-in electrodes being configured to tilt an end of the structural film in a direction towards that snap-in electrode upon application of a potential difference between the structural film and that snap-in electrode.

21. The method recited in claim 19 wherein the reflective coating comprises gold.

22. The method recited in claim 19 wherein,

forming a first hold electrode comprises forming a first comb structure having a plurality of teeth, wherein the first hold electrode is configured such that the first tilted position is defined by an angle with respect to the substrate that depends on the potential difference between the structural film and the first hold electrode; and

forming a second hold electrode comprises forming a second comb structure having a plurality of teeth, wherein the second hold electrode is configured such that the second tilted position is defined by an angle with respect to the substrate that depends on the potential difference between the structural film and the second hold electrode.

23. A method for operating an optical switch, the method comprising:

tilting a first end of a micromirror assembly towards a substrate by applying a first electrostatic force; and

thereafter, holding the micromirror assembly in a first tilted position with respect to the substrate with a second electrostatic force originating from a point laterally beyond an orthogonal projection of the micromirror assembly on the substrate.

24. The method recited in claim 23 further comprising:

releasing the micromirror assembly from the first tilted position;

thereafter, tilting a second end of the micromirror assembly towards the substrate by applying a third electrostatic force; and

thereafter, holding the micromirror assembly in a second tilted position with respect to the substrate with a fourth electrostatic force originating from a point laterally beyond the orthogonal projection of the micromirror assembly on the substrate.

25. The method recited in claim 24 further comprising:

selecting the first tilted position from a plurality of possible first tilted positions by establishing a potential difference between the micromirror assembly and a first electrode used to establish the second electrostatic force; and

selecting the second tilted position from a plurality of possible second tilted positions by establishing a potential difference between the micromirror assembly and a second electrode used to establish the fourth electrostatic force.

26. The method recited in claim 23 further comprising selecting the first tilted position from a plurality of possible first tilted positions by establishing a potential difference between the micromirror assembly and a first electrode used to establish the second electrostatic-force.

27. A microstructure for steering light, the microstructure comprising:

support means;

tiltable micromirror means connected with the support means; and

first electrostatic-field-generation means for providing an electrostatic field to hold the tiltable micromirror means in a tilted position with respect to the support means, wherein the first electrostatic-field-generation means is connected with the support means at a position laterally beyond an orthogonal projection of the tiltable micromirror means on the support means.

28. The microstructure recited in claim 27 further comprising second electrostatic-force-generation means for tilting the tiltable micromirror means, wherein the second electrostatic-field-generation means is connected with the support means at a position laterally within the orthogonal projection of the tiltable micromirror means on the support means.

29. The microstructure recited in claim 27 wherein the first electrostatic-force-generation means is configured for providing a plurality of electrostatic fields to hold the tiltable micromirror means in a respective plurality of tilted positions depending on a state of the first electrostatic-force-generation means.

30. The microstructure recited in claim 27 wherein the tiltable micromirror means comprises torsion-beam means.

31. The microstructure recited in claim 27 wherein the tiltable micromirror means comprises cantilever means.

32. A wavelength router for receiving, at an input port, light having a plurality of spectral bands and directing subsets of the spectral bands to respective ones of a plurality of output ports, the wavelength router comprising:

a free-space optical train disposed between the input ports and the output ports providing optical paths for routing the spectral bands, the optical train including a dispersive element disposed to intercept light traveling from the input port; and

a routing mechanism having at least one dynamically configurable routing element to direct a given spectral band to different output ports depending on a state of the dynamically configurable routing element, wherein the dynamically configurable routing element includes:

a micromirror assembly connected with a substrate by a structural linkage; and

a first hold electrode connected with the substrate at a position laterally beyond an orthogonal projection of the micromirror assembly on the substrate and configured to hold the micromirror assembly electrostatically in a first tilted position with respect to the substrate upon application of a potential difference between the micromirror assembly and the first hold electrode.

33. The wavelength router recited in claim 32 wherein the dynamically configurable routing element further includes a first snap-in electrode connected with the substrate at a position laterally within the orthogonal projection of the micromirror assembly and configured to tilt a first end of the micromirror assembly towards the substrate upon application of a potential difference between the micromirror assembly and the first snap-in electrode.

34. The wavelength router recited in claim 33 wherein the dynamically configurable routing element further comprises:

a second hold electrode connected with the substrate at a position laterally beyond the orthogonal projection of the micromirror assembly on the substrate and on an

opposite side of the structural linkage, wherein the second hold electrode is configured to hold the micromirror assembly electrostatically in a second tilted position with respect to the substrate upon application of a potential difference between the micromirror assembly and the second hold electrode; and

a second snap-in electrode connected with the substrate at a position laterally within the orthogonal projection of the micromirror assembly and on an opposite side of the structural linkage, wherein the second snap-in electrode is configured to tilt a second end of the micromirror assembly towards the substrate upon application of a potential difference between the micromirror assembly and the second snap-in electrode.

35. The wavelength router recited in claim 32 wherein the first hold electrode comprises a comb structure having a plurality of teeth, the first hold electrode being configured such that the first tilted position is defined by an angle with respect to the substrate that depends on the potential difference between the micromirror assembly and the first hold electrode.